THE RAMOTSWA ANTENATAL RISK CARD AND FETAL GROWTH GRAPH INSTRUCTIONS AND BACKGROUND NOTES

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INSTRUCTIONS AND BACKGROUND NOTES

Introduction

Side 1 of this card is the history and initial examination. Side 2 is for the graphs and regular Antenatal visits. The History side has three columns so that the card can be folded in three and kept by the mother in the plastic envelope provided for her to keep her own record with her wherever she goes. This saves clinic time and transfer problems. All health workers all over the country can use the same record thus ensuring continuity.

Side 1
Column 1
Section A

PERIODS Usual Cycle / Days

Last NORMAL Period

When Month Known, was it? EARLY | MID | LATE

Was it a) At the Usual Time Yes No

b) The Usual No. of Days Yes No

c) The Usual Amount Yes No

Was a period missed before last? Yes No

Last NORMAL Menstrual Period

We always blame the patient for not knowing her dates. The date may be there if we search for it, and the patient sees that we really need to know. Even if we can only get the month it helps. We may narrow it down by a further two weeks if we ask if it was at the beginning, in the middle or at the end of the month. Also remember that some bleeding may occur in the first month or two of pregnancy. If we do not check this we may get the date wrong. Careful questioning about periods is essential and must never be left out.

"Moon Dating"

Many diaries carry the dates of the phases of the moon during the month. Among "moon-calendar" societies it is possible to date the period fairly accurately using the diary.

Section B
(Self-Explanatory)

FAMILY PLANNING Has Practised? Yes No

Method Used Date Stopped?

Wants FP after Delivery? Yes No

Section C

FAMILY HISTORY HPT DIAB. TWINS CONGEN.....

The main diseases of importance are listed for circling. Enter any other in the empty space.

Section D

PAST PREGNANCIES Ab Para Grav

Time Since Last? Month or Years

How Many Alive? Age of Youngest?

Past Pregnancy

Birth Interval (Time since last?)

Child spacing advice is an essential part of Primary Health Care, two years being a wise minimum interval. If the time has been less than two years write the time in months in the box. Over 2 years write the number of years. This overlaps with the FP section above. The birth interval is very important both for the health of the mother and in prevention of rejection of the suckling child and the development of protein energy malnutrition. (See Spacing of Pregnancies below)

Section E

Recording Risk Factors

Place a tick or cross in each box opposite any positive finding. Red pens show up better. At the end, simply add up the ticks to get the total number of risks found in that patient. Enter these in the box at the top of the last column. Circle which risk is referred to e.g. HPT, (PET) Heart.

Past Risk Factors

First we need to know the actual number of risks and then we must decide on how serious each risk is to mother and baby (see background notes list of risk factors). (p 13).

History Details

Never be casual about the details of past "accidents" to babies or obstetric operations or other complications. Some mothers may not know details. Sometimes they know but we do not ask. Every effort must be made to find out why C/section was done as the whole management of this pregnancy may depend on it.
"Other" means any condition which could possibly affect the pregnancy. e.g. Malaria or Sickle Cell Disease.

PAST RISK FACTORS (1 point for each)

1. Details of PAST PREGNANCIES

YEAR	AB	SB	NND	GEST	WT	COMPLICATION	RISK

2. OBSTETRIC COMPLICATIONS — Number

Labour - Too Long (24 hours+) or Too Short ☐
V/E, Forceps, Symphysiotomy? ☐
C/S ☐
Indication .....
A.P.H., P.P.H.

3. MEDICAL COMPLICATIONS

HPT, PET, Heart, Renal, STD, Diab., Anaem. TB? ☐

Details .....
.....
.....

4. OPERATIONS & ACCIDENTS ☐

Details .....

5. OTHER? - Details ☐

Details .....

PRESENT RISK FACTORS THIS PREGNANCY

Under 16, Over 35 years (Prim. 30 yrs.+) ☐
Long Time Since Last (5 years +) ☐
Late Booker (36 weeks +) ☐
Unsatisfactory Home Conditions ☐
Unwise Habits (Alcohol, Tobacco, Obese) ☐
On Any Treatment? What? ☐
Allergies? Which? ☐

Short Height Under 150 cm - Hgt ..... cm ☐

Shoe Size ☐

Column 2

Section F - Present Risk Factors

This refers to the booking visit and self-explanatory.
New risks may develop as pregnancy co tinues. These are recorded on side 2.

Section G - Examination

EXAMINATION

Nutrition ☐ Breasts ☐ Thyroid ☐
Heart ☐ Nipples ☐ ☐ XRayCh ☐

VAGINAL EXAM

Vulva ☐ Vagina ☐ Cervix ☐
Ut.Size ☐ Adnexae ☐ PAP Smear ☐
Pelvic Size

SMALL	BORDERLINE	NORMAL

There is no reason why a M/W should not do as full an examination as possible within the time available. Where there is no doctor, if you do not do it, no one else will!

Vaginal Examination (V E or P V)

While there is also no reason why a M should not do a VE on all patients at t booking visit, in practice this is impo sible.

Some selection has to be done. Now that Philpott's Labour Graph is available fo a trial of labour, it is no longer necessary to do pelvic assessments on all prim gravidae. It is much more important to do the PV to assess the gestational age whe women do not know their dates and come early enough for this to be of help. (See Background Notes)

LABORATORY

Date	Hb	Date	Hb	Date	VDRL'(WR)'	Date	T/Tox
					Neg. Pos.		
Blood Group					M.S.U.	Bact+	W.B.Cs+
					Antibodies		

Section H - Laboratory

M S U - Wherever possible, a mid-stream urine should be checked for bac teriuria or excess white cells (WBCs at the first visit. If protein in th MSU cannot be explained it should a be examined microscopically.

Antibodies - These are not routinely done but only in societies where Rhesus Disease is a common problem or the past history indicates it.

Section I - Consent Forms

These are included because under-age patients may need urgent operation without adequate preparation or consent. These consent forms can save time and avoid unnecessary distress due to the absence of husband or parent.

CONSENT FORMS

For Complications of Pregnancy

I give consent for the Registered Health Worker to give an anaesthetic and perform any operation on myself/my dependent that may be necessary.

Signed..... Relationship.....

Witness..... Date.....

For Tubal Ligation

I/We give consent for the Registered Health Worker to perform an operation to tie the tubes to prevent further pregnancies.

Signed..... Husband.....

Guardian..... Relationship.....

Witness..... Date.....

Section J - Number of Risks and Degree of Risk

See comments in section E above. The M/W must make a definite decision about the dangers facing each patient both when she books and again just before term (36 weeks).

NUMBER OF RISK FACTORS ☐

DEGREE OF RISK

Normal ☐
Moderate ☐
Severe ☐

ADVISED PLAN OF ACTION

Delivery by Midwife ☐
Referral for Checking ☐
Delivery in Hospital ☐

Advised Plan of Action

This is first decided by the M/W but may need to be decided in consultation with the doctor in difficult cases, taking all aspects of the patient's circumstances into account. The patient has to agree to what is decided and this is not always so easy and a compromise has to be reached.

Section K - Hospital Admissions

Use one column for each admission.

Few seem to take this section seriously yet it is a constant cause of irritation to clinic staff if not filled in properly by hospital staff. It can put the patient in real danger. There must be close co-operation among all who care for the patient throughout pregnancy.

ADMISSIONS DURING PREGNANCY

Admission			
Discharge			
Hosp. No.			
Diagnosis			
Follow Up			

Section L - Space for Notes

If, while filling in the card, there is too little space to fill in the details, write "see notes" in that place and then write the details in the "Notes" space. This also applies to the notes spaces on the graph side of the card (See below).

Section M - Spacing of Pregnancies (Bottom of Card)

This gives a clearer picture of the birth intervals over the whole of the woman's reproductive life and helps to fill in the picture we get of her family. Write the date of her first pregnancy before the correct number e.g. 1968 - write 6 before the first 8 and fill in all the other years circling those when she had her babies. e.g. (68) 69 70 (71) 72 (73) .... etc.

SPACING OF PAST PREGNANCIES (Fill in Year) 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5

Side 2 - Growth Graph and Record of Visits Through Pregnancy

Top Section

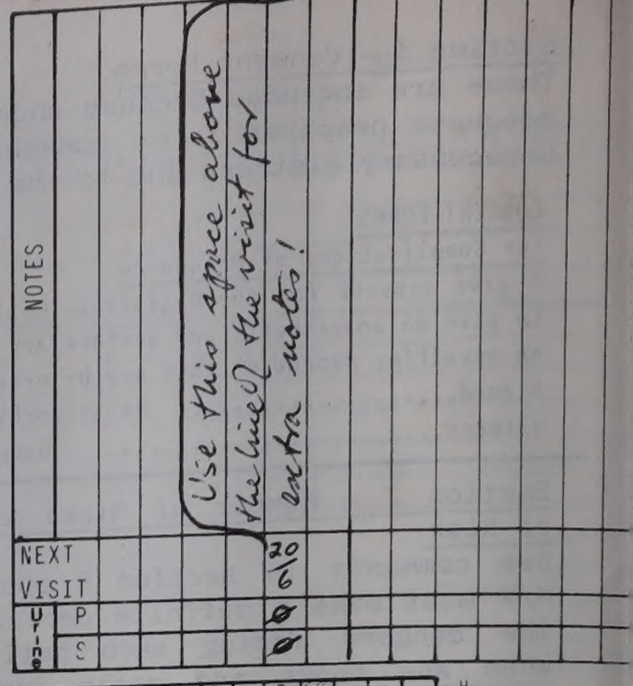
This is actually filled in last after the recordings in the lower section have been made in the correct week of pregnancy column. (See below) The card has to be turned on its side to write in the "notes" space.

Urine tests - "P" = Protein and "S" = Sugar

Writing of Notes

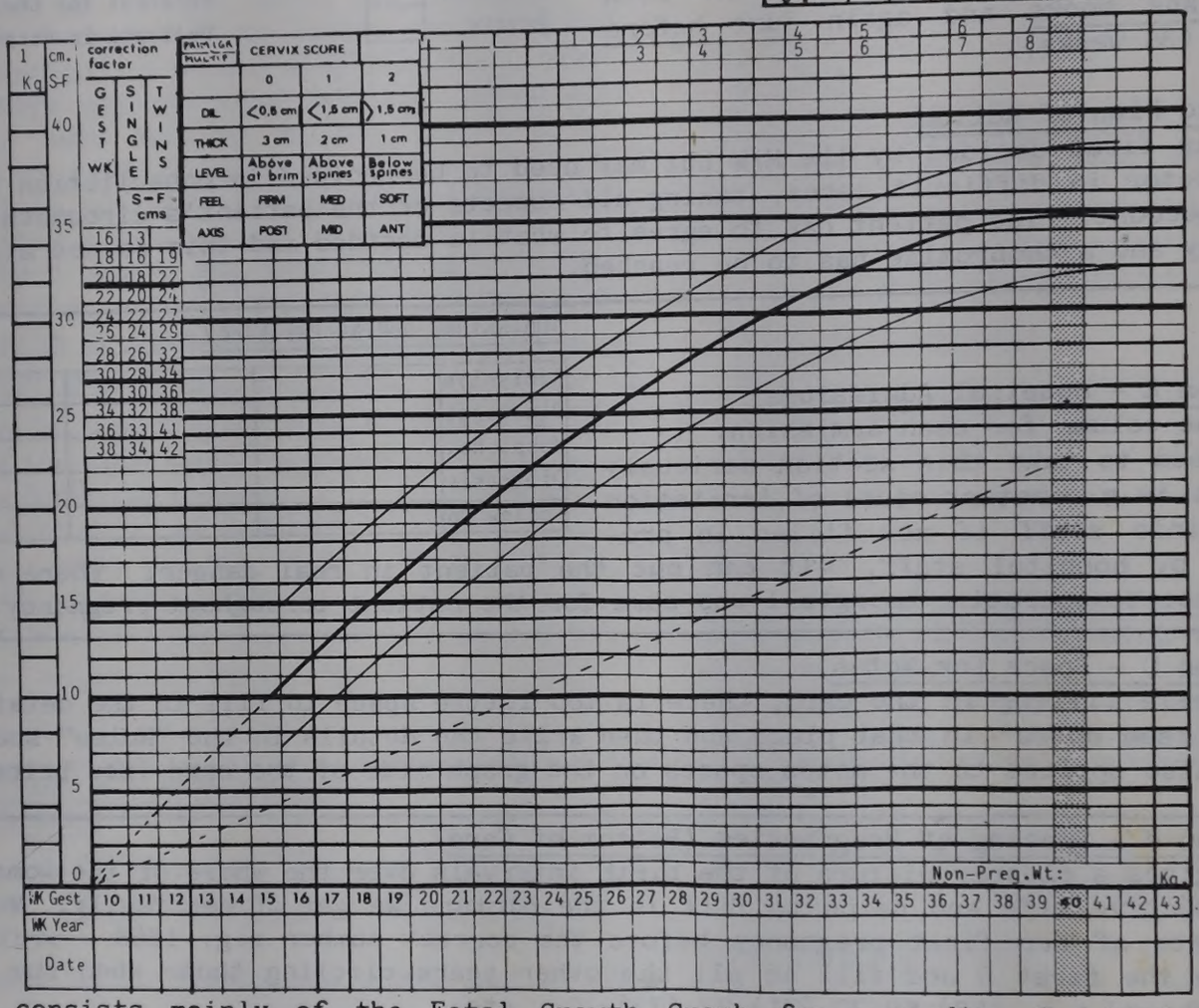
As there is not much space for notes, it may be necessary to write any extra notes on side 1. But you can use the unused space between visit entries by drawing a balloon (a line running round the notes as in a child's comic), and writing inside the space e.g. in the fig. you can use the two lines above which are empty.

The Date of the Next Visit is important because by marking it on the card and telling the woman the exact date, we know immediately whether she has come on the right day or not and can emphasize the importance of regular visits.



Middle and Bottom Section

Middle Section (See following pages below). "Correction Factor" and "Cervix Score" - see below.



This consists mainly of the Fetal Growth Graph for recording Symphysis-Fundus (S-F) Height and the mother's weight in kg (pounds-lbs cannot be used and must be converted).

Dates and Weeks - Below the graph are i) a line of weeks of PREGNANCY from 10 to 43, ii) Space to enter Calendar weeks of THE YEAR below the weeks of pregnancy, iii) the space to enter the DATE below the correct calendar week number (See graph example). At the left side are the blank squares for entering the patient's weight and the scale from 0 to 40 cms for entering the height of fundus. (The Correction Factor and the Cervix Score will be described later.)

Normal Uterine Growth Curves (S-F) Height)

The three curved lines across the graph represent expected height of fundus in normal women (90th, 50th and 10th centiles) as in the Under 5's Card.

Normal Weight Line

The lower dotted line represents average growth of Batswana women in pregnancy. Actual weight lines will vary far more than S-F lines and among other ethnic groups may follow a higher or lower curve. Also, heavier women (70 kg) will tend to gain more, while lighter women (50 kg) will tend to gain less. However, the line is still useful as a rough guideline of what to expect. Sudden changes in weight may indicate oedema of PET.

Comment on Usefulness of S-F Measurements - Calvert et al (1982) BMJ 285:846(25/9)
"The technique may be used by medical and paramedical staff without loss of accuracy, freeing senior staff for other functions - of particular value in underdeveloped societies. We believe the measurement of S-F height provides a communicable way of expressing fundal height and an easy and inexpensive screening test for intrauterine growth retardation. As no special skill is necessary, it may be used with equal accuracy by all who care for the pregnant women".
"..it goes much further than the casual hand on the fundus.." BMJ 16/10/83 p 118.

Bottom Section

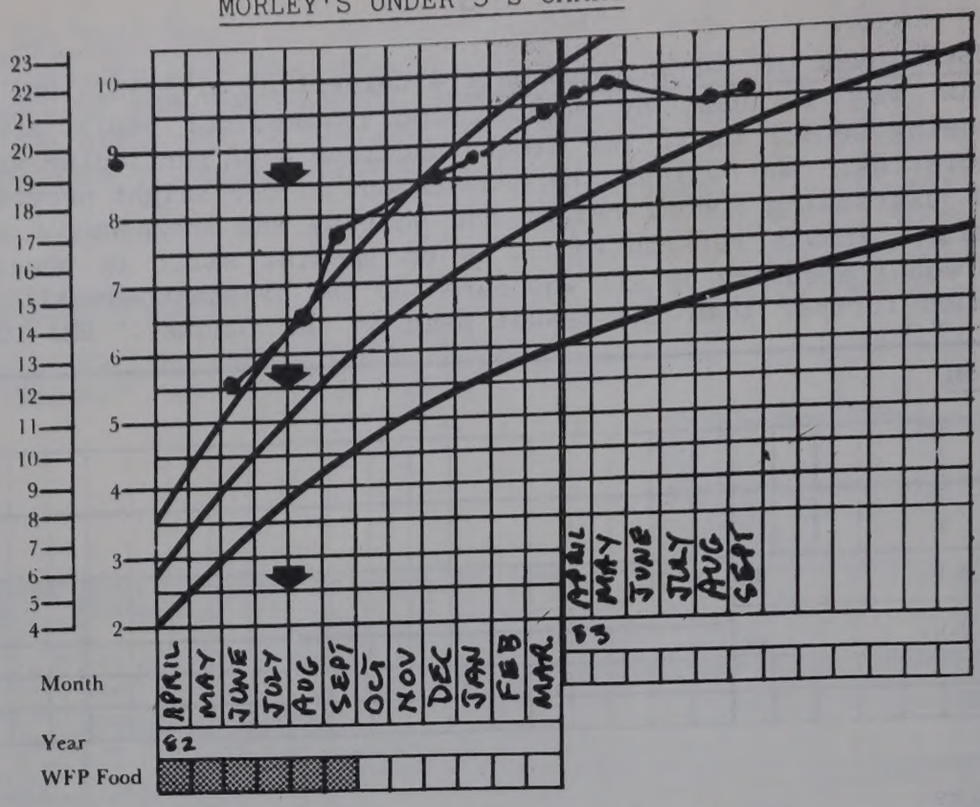
Routine entries
Blood Pressure (BP), Fetal Movements, Presentation of the Fetus, Amount of Liquor, and the Fetal Heart can all be recorded in the blank squares at each visit. Which square to use is determined by the week numbers filled in below the graph, and will be in line with graph entries.

"Fetal Heart" - At AN Clinics, before the onset of labour, the fetal movements are far more important than the fetal heart. If it is there it means very little, and if it is not, there is nothing further one can do providing we are sure it is not there. (Many an absent fetal heart has turned out a live baby!). Monitoring the fetal heart during labour or in patients at risk is something quite different and then becomes a vital part of continuing observation and assessment. (See "Non-Stress Test" below).

"Odema of Face and Hands" - Up to 60% of normal patients will have some oedema of the feet and legs during pregnancy. Many patients with hypertension (HPT) needing treatment, will not have any oedema so this is not a useful thing to record. Swelling of the face or hands (tight rings) is important and must always be recorded and taken note of seriously. These patients must be referred.

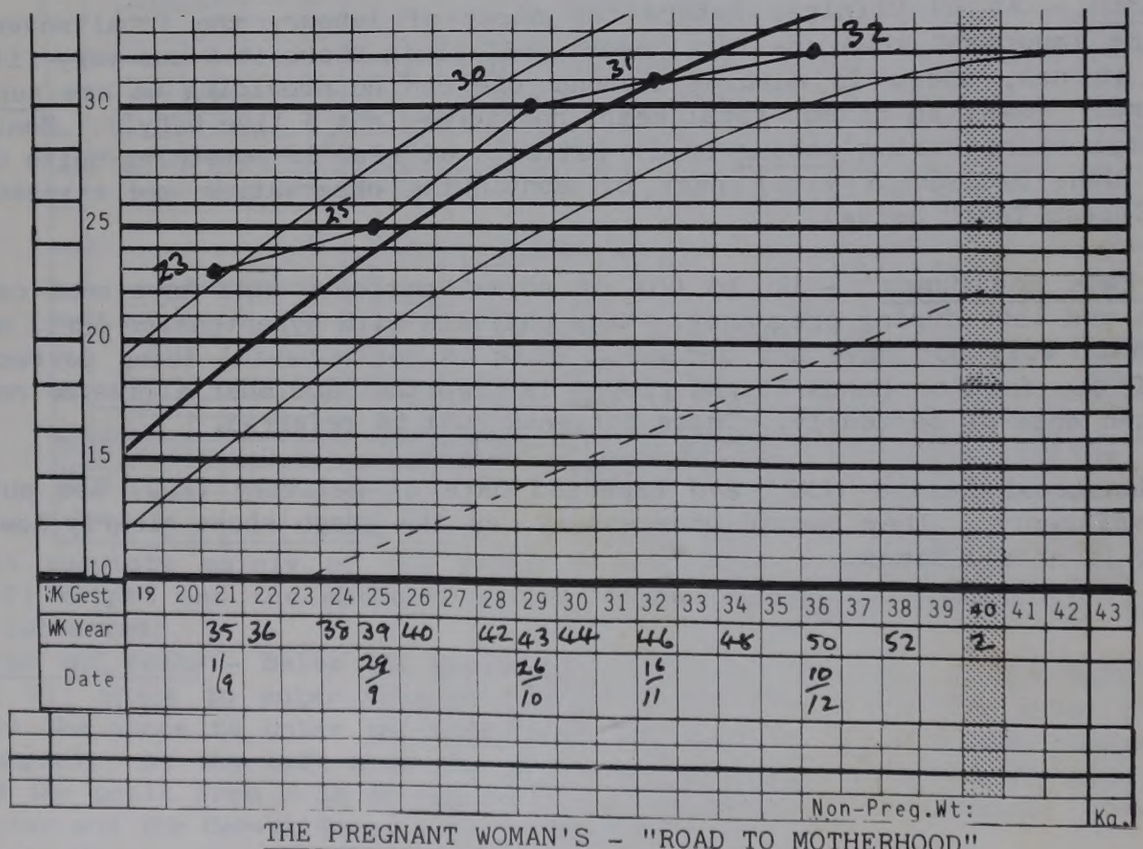
The Last Menstrual Period (LMP) and Expected Date of Delivery (EDD) are put in for quick reference. They become unnecessary, as the graph shows clearly how far the patient is at all times.

MORLEY'S UNDER 5's CHART



THE CHILD'S - "ROAD TO HEALTH"

THE FETAL GROWTH WATCHING GRAPH



THE PREGNANT WOMAN'S - "ROAD TO MOTHERHOOD"

Growth Graphs in Primary Health Care

Professor David Morley's Under Fives' "Road to Health" graph is used world wide. A very similar "Road to Motherhood" graph can be used for pregnancy. By using week-numbers from a calendar, in the same way Morley's card uses months, a completely time-accurate way of following pregnancy is possible. This avoids the confusion and uncertainty of guessing at gestation at each visit. Without the use of calendar week-numbers, this whole system loses all its value.

The Use of Calendar Week-Numbers

To fill in the graph, only one calculation is necessary. This is, to find out how far pregnant the patient is at the booking visit. Once this has been done, all other dates automatically fall into line, including the EDD. Calendar Week-Numbers are essential for the correct spacing of visits on the graph and must not be confused with weeks of pregnancy.

EDD - Jan 13

Where to Start

The weeks of pregnancy are clearly marked along the bottom of the graph. The spaces for writing in the weeks of the year (Calendar Weeks) are immediately below. The correct week of pregnancy is used as the starting point but has to be matched with the correct calendar week number and date.

Look down the calendar at the side of the graph until you reach the date of the LMP? Let us say 6th April. This is calendar week number 14. Continue down the calendar to the date of the first visit, say 29th September. This is week number 39. Now subtract the week of the LMP (14) from the week of the first visit (39) 39-14 = 25. The patient is 25 weeks pregnant. Entries on the graph will start at 25 wks.

LMP - Apr 6

Matching Calendar Weeks to Pregnancy

Weeks Below the Graph

WK Gest	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
WK Year																39	40		42		44		46		48		50		52		2				
Date																29/9															13/1			

The calendar week-number of the first visit (39) is now written below pregnancy week number 25. Write the date 29th Sept (29/9) directly below the calendar week number you have just written (39).

Now write every second calendar week number from 39 on (40, 42, 44, 46..) along the blank squares till you come under the 40th week of pregnancy. (With only 52 weeks in the year, go back to week 1 to continue when you reach 52) In our case calendar week number 2 falls under 40 wks. This gives an EDD of Jan 13th (Wk 2-Jan 7th - 14) (If we add 7 days to the LMP, April 6, + 7 we get 13th [Jan] the EDD) This takes a long time to explain but is very quick to do and with practice is very easy and as quick as using a plastic calculator.

If the first visit falls in the next year it is a little more complicated as it is necessary first to subtract the week of the LMP from 52 (The end of the year) and then add the weeks from Jan 1st up to the first visit. Say the LMP was Sept 29 (Wk 39), and the first visit was April 6 (Wk 14). Subtract 39 from 52. 52 - 39 = 13 wks. Jan 1st to April 6 is 14 wks. 13 + 14 = 27 wks pregnant.

Correction Factor - What to do when Dates are not Known

The week of pregnancy can be very simply worked out from the S-F height in cms. This is called the "Correction Factor" which is at the top left hand corner of the graph and serves for both singletons and twins. Say the height of the fundus (S-F) is 32, look down the middle column under "single" till 32 is reached. Look to the left in the "Gest Wk" column, = 34 weeks. If it is found that there are twins look for 32 in the right hand column. Look for the Gest Wk = 28 wks only.

1st V-Sept 29

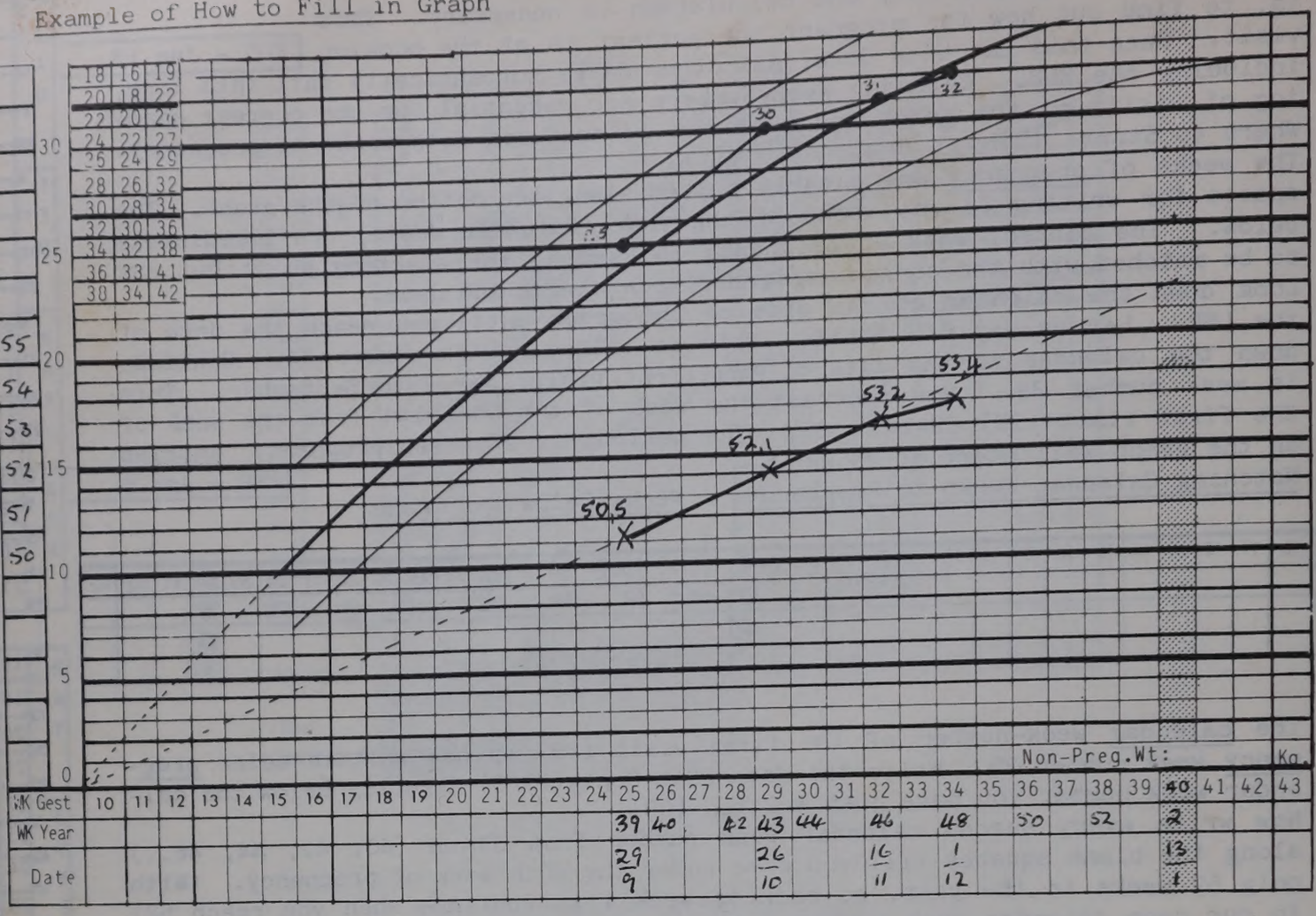
correction factor		
GEST WK	SINGLE	TWINS
	S-F cms	
16	13	
18	16	19
20	18	22
22	20	24
24	22	27
26	24	29
28	26	32
30	28	34
32	30	36
34	32	38
36	33	41
38	34	42

Since large numbers of women are unsure of their dates, this simple table is very useful to get started with the graph. If it is found that dates and fundus do not match it is often found that the dates are wrong! If there is any doubt, it is best to check weekly at first to see if the inconsistency is confirmed. If it is only later discovered that there are twins it is best to make out a new, corrected graph - keeping the old one for reference to other information.

Interobserver (from worker to worker) and intraobserver (the same worker at different times) variation causes some difference in measurement from visit to visit, but usually they are surprisingly consistent. When patients seem to be overdue (42-43 wks), surgical induction of labour must never be lightly undertaken without a complete review of all information relating to that patient - dates, measurements, size and feel of the fetus, liquor, fetal movements. Only if there are signs that the fetus is sluggish or growth retarded should induction be considered and only if facilities for adequate and safe intervention are available.

WEEK NO.

Example of How to Fill in Graph



Measuring S-F Height

Measure from the top of the symphysis to the top of the uterus. Indent the skin only very gently to locate the uterus but be sure it is straight so that it is measured in its longest axis. It is often tilted away from the midline. Be sure the bladder is empty. (This may create difficulties in busy clinics). Do not stretch the tape but lie it flat along the curve of the uterus.

After measuring, find the correct week of pregnancy column on the graph. Look up the left border of the graph to find the correct centimetre line. Follow it to the right till it meets the week of pregnancy column and enter a dot on the graph, e.g. on the graph the first S-F reading is 25 cms in the 25th week of pregnancy. At 29 weeks the reading is now 30 cms and at 32 wks is only 31 cms. Note how the calendar week numbers give the correct time-spacing to get the graph to follow the proper curve.

Filling in the Weight -

The blank squares at the left side of the graph represent 1 kg and the lines on the graph 0,5 kg each.

After weighing the patient, find the same week of pregnancy column in which the S-F was entered. Find the place in this column where the dotted weight line crosses the week of pregnancy column, and mark with a small cross the tenths of a kg in that space. The cross will be close to but not necessarily on the dotted line. Now follow that space to the left until you reach the empty weight boxes and write in the value of the weight in whole kgs e.g. at 25 weeks a patient weighing 50,5 kg will be entered on the line just above the 10 cm S-F line which is crossed by the weight line almost exactly on the 0,5 line. Write 50 in the blank side-square just above and to the left of the 10 cm figure printed in the cm column at the left. Now write 51,52,53 etc., in the blank squares above for use at later visits as the weight increases. The graph can be made to fit each patient's own weight pattern, thus saving space. At the next visit, use that day's date to find the correct calendar week number. This you will then find written on the card from the first visit and it is a simple matter to fill in the recording in that column, e.g. in the figure, the patient next comes on 26th Oct. (week 43). Find week 43 between 42 and 44 written at the booking visit, and make a cross for a weight of 52,1 kg using the weight numbers in the left hand squares as a guide. Join up the dots and crosses to make a graph curve.

Examples of Different Growth Patterns

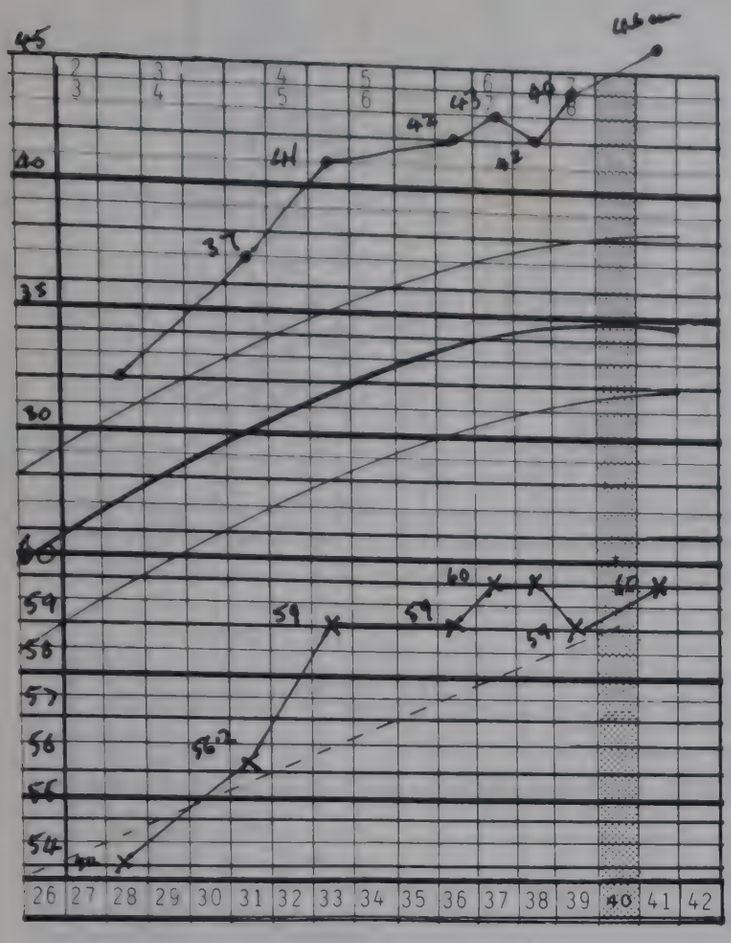


Fig 1

Fig 1 - S-F at 28WKS = 32cms. Must be twins - confirmed. Further growth typical of twins - well above the 90th Centile.

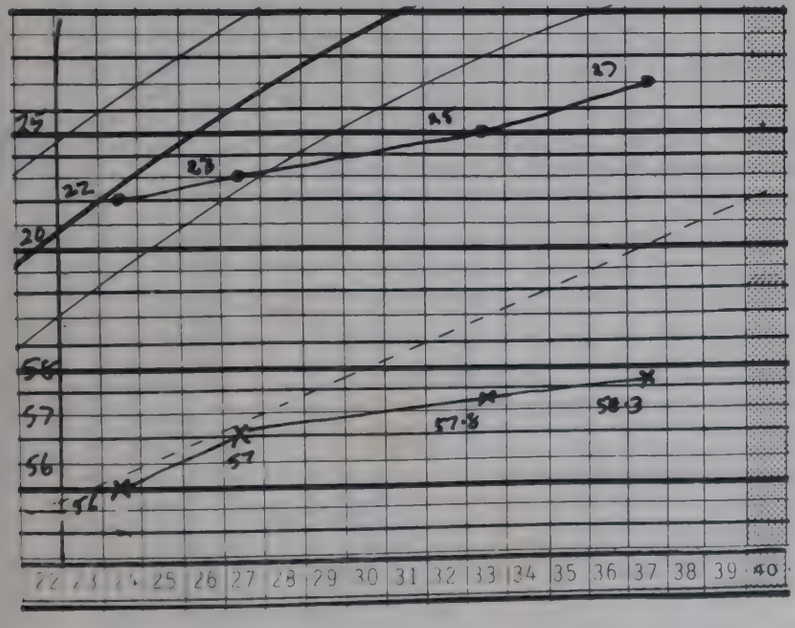


Fig 2

Fig 2 - Progressive falling away of S-F from normal = IUGR. Born at 38wks but birth weight only 1,76Kg. Also found to be microcephalic. This is the lowest S-F we have so far recorded.

IUGR = Intrauterine Growth Retardation

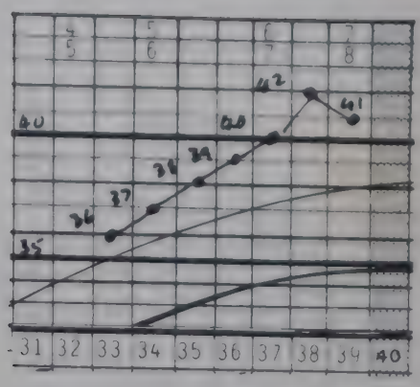


Fig 3

Fig 3 - Late booker at 33 wks. Asked to attend weekly. S-F 36 cms suggests twins but not confirmed. Must be large for dates fetus. C/Section after diagnosis of cephalo-pelvic disproportion. Birthweight 4,23Kg at 39wks gestation.

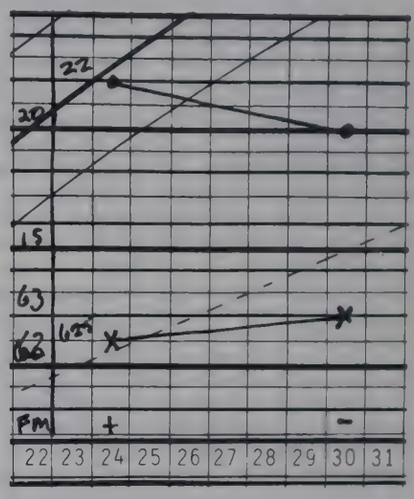
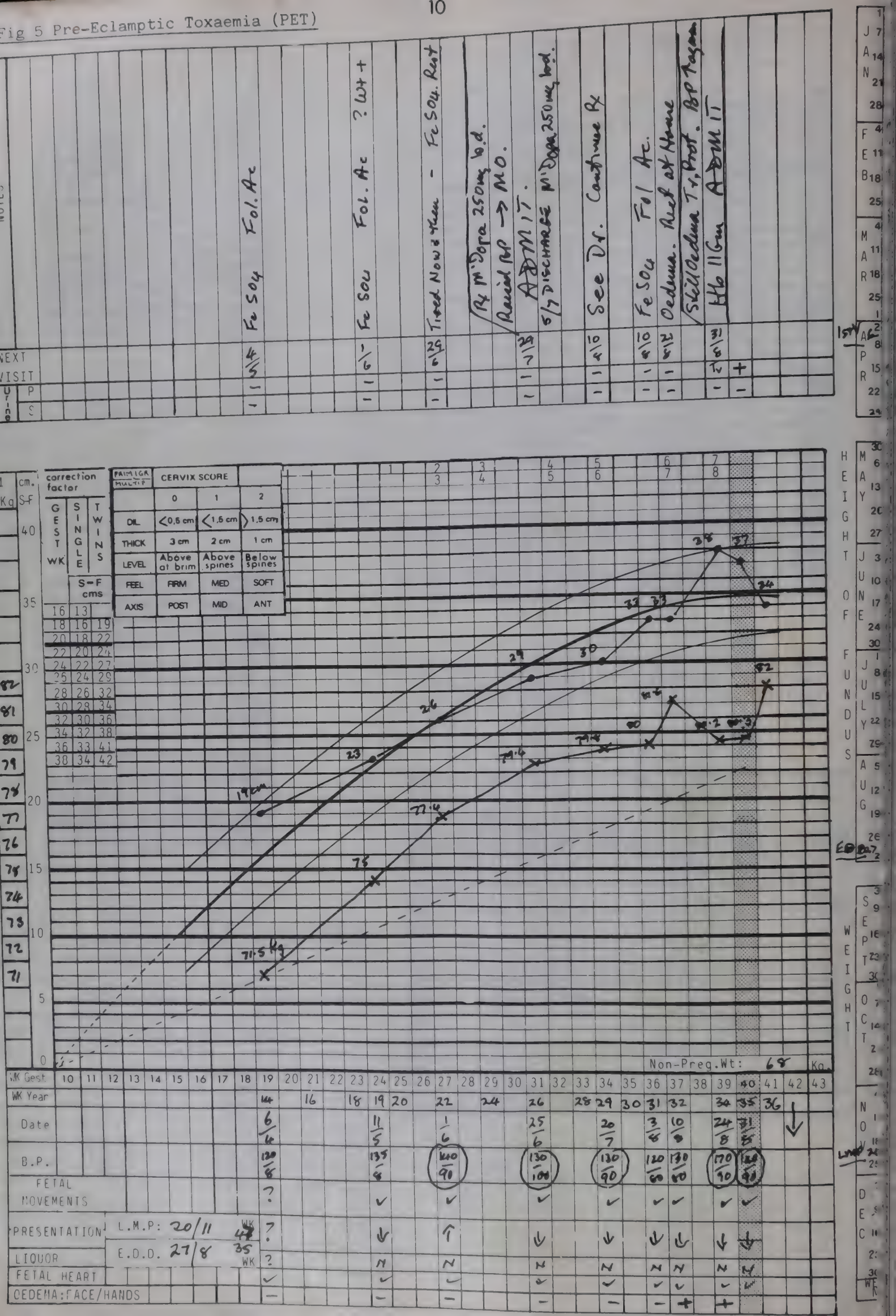


Fig 4

Fig 4 - Booked at 24wks. Did not come in 4 weeks as asked. Came after 6 weeks and reported no fetal movements for 2 weeks. S-F actually lower than at first visit. Poor weight gain, no fetal heart heard. IUD- - Intrauterine death - Stillbirth. Always warn mothers about fetal movements becoming sluggish.

Fig 5 - (Next Page) - Pre-eclamptic Toxaemia. Note excess weight gain before rise of BP. Birth weight 3Kg but baby obviously wasted (Growth Retarded) in spite of "normal" weight. It is sometimes dramatic to see the downturn of the graph as oedematous patients are put to bed and they rapidly lose excess weight.

Fig 5 Pre-Eclamptic Toxaemia (PET)



Expanded Notes for Midwives

Introduction

The methods described here are not meant to take the place of the normal, routine antenatal care which midwives practice all over the world. We are only stressing things which were not previously thought important or not even known. Routine and well known procedures will therefore not be mentioned except where they relate to the new system.

Health Education (HE)

In areas where maternal and perinatal morality is still high, HE must concentrate on conditions which kill mothers and babies. Concentrate on the four "comes": Come early, come regularly, come when things seem wrong and come as soon as labour begins. If we get these accepted we will have achieved more than all the lectures on hygiene and nutrition can ever do.

In busy clinics, HE is always the first to suffer as staff are "borrowed" for more urgent duties. Also, HE easily becomes boring and enthusiasm fails. We must believe in it ourselves and preach it like the gospel (good news) which it really is. HE covers four main areas. 1. Talks to groups of patients. 2. Talks to individuals during consultation. 3. Using the Under 5's Clinic to teach mothers about general topics like nutrition. 4. Home visits, post natal clinic and FP clinic, and village meetings. Never lose an opportunity. Invite grannies and aunts too. Women who eat poor food or who don't wash are not likely to suddenly change just because they are pregnant. How often do we check to see whether what we are trying so hard to teach is actually being accepted or having any effect?

This sounds very negative but above all we must be honest with ourselves and adapt. Concentrate only on the essential things mothers need to know and see that they know them backwards. Risks to mother and fetus are the things they most urgently need to know. Health workers should also know the special risks in their areas e.g. Neonatal tetanus or malaria. Primigravidae probably need to be treated as a special group as they need more intense instruction than mothers who now have some idea of what having babies is all about.

The most basic set of subjects for ANC HE seems to be:

1. Danger signs of pregnancy. (Some of these are covered elsewhere)

a) Symptoms of Threatening Preterm Labour.

b) Vaginal Bleeding of Any Kind.

c) The Significance of Headache with Epigastric Pain and Vomiting, Hand and Face Oedema and Fits.

d) The Importance of Normal Fetal Movements and the dangers of a change to Sluggish Movements. The S-F Measurement can be simply explained each time it is done so that if Growth Retardation is found the mother understands what is happening and what needs to be done.

e) Dangers of Infection to Mother and Fetus - High Fever, Urine Infection and Discharge. Mothers need to be taught that when the pregnancy is in danger they may need to rest completely or even be admitted to hospital (PET, Preterm Labour) for some weeks. This is very difficult for many mothers to accept and puts a severe strain on the family (and on clinic and hospital beds!) Sometimes a compromise has to be worked out but by showing genuine concern and supporting the patient through whatever decision is reached and during the long stay in bed or hospital, better results will be seen.

2. Dangers of Bottle Feeding. In many areas breast feeding is the norm and needs no emphasis but sooner or later the bottle tends to appear. (Under 5's Clinic attendance!)

3. Family Planning. Sow the seed at the first visit so that by the time the PNC visit comes around she is ready to start.

4. Normal anatomy and physiology of pregnancy and labour and what might be done by M/W and doctor if complications occur. How about a visit to the labour ward by primigravidae or those not delivering in hospital before - it need not take long? "Book early and attend regularly". Some incentive is needed since women will not come for nothing unless they have full confidence in the staff. Compassion and competence will achieve more than hours of HE lectures.

Periods

Some patients still go by the moon. Many diaries give the phases of the moon so it is possible to make a rough estimate as to the time of the last period. FP injections and pills can seriously upset the periods and have added to our problems in getting an accurate LMP. At every opportunity women must be reminded to keep track of the periods. If women tend to give the last instead of the first day always ask for both days. Remember that in women with unusually long or short cycles the EDD will possibly be out by a week or two. This is where the graph is particularly valuable. Even mothers who seem very sure of their date can be wrong.

Family Planning

Some Health Workers (HW) have complained that undue prominence is being given to FP on an antenatal card. We are not just interested in pregnancy we are interested in the whole woman and her family (husband too). Unless we get a full picture we can't care for her properly.

Past Complications

Although it is nice to know all about the normal pregnancies - e.g. how many boys or girls - that is not relevant for antenatal care and takes up a lot of time which is needed for more detailed information about past complications, e.g. why a C/Section was done. Women should not be allowed to leave hospital after C/Section until they can tell us in their own words why the operation was done!

Suggested Abbreviations

Ab -Abortion	Fo -Forceps	PET-Pre Ecl. Toxaem.	SB -Stillbirth
APH-Ante Part. Haem.	HPT-Hypertension	PPH-Post Part. Haem.	STD-Sex. Trans. Dis.
CS -C/Section	Hrt-Heart	PTm-PreTerm	Sym-Symphysiotomy
Dia-Diabetic	NND-Neonatal Death	Ren-Renal	Tb -Tuberculosis
Ecl-Eclampsia	PP -Plac.Praevia	RPl-Retain. Plac.	Tw -Twins
Sfd-Small for Dates (IUGR)		VE -Vacuum Extraction	

Risk Factors (See Table below)

Even the top experts have not been able to work out a fool-proof system for assessing risk to mother and baby. Some risks need to be "weighted", that is be given more importance than others (see Canadian system on table). What is important is that we do not miss any risks. Once we know which they are then we can start to work out how dangerous for our particular patient they are. No two women are the same, so we need to take all the circumstances into consideration. A lot will also depend on what skills are available to deal with complications. The risks on the table are arranged in logical order like the questions on the card.

Detailed History

For every complication ask yourself "Why"? Why did she abort? Why did she have a long labour? Why did a full-term baby die after a normal labour? Often your patient will not know but sometimes she will give you clues. It is not enough just to get the facts; always look for the reasons. Use a red pen to record anything really important so that it will be seen each visit.

Background Information

Gathering background information is very important and is well worth the effort, but does take more time. M/Ws who know their patients well are like family general practitioners. It is important to know the patient and her family's attitudes to health care and traditional medicine. Great tact may be necessary to get the co-operation for being transferred to a strange hospital or getting permission for operation. Other relevant questions include: How is the home? Who will care for the patient and get her to the clinic in time? Will she deliver at home with a birth attendant?

The better you understand your patient's background the better you will be able to make the right decisions about her. Decisions about the fetus need to take into account the parity and age of the mother, number of live children, accidents to previous babies and the stage of pregnancy.

Risk Table - Degree of Risk

High risk = ++ Moderate Risk = + Possible Risk = ?

Past History	Baby	Mother	Canadian
Abortion (2 or more)	++	+	1
S B	+	+	3
NND	+	-	3
PreTerm (2 or more)	++	-	1
Small/Large< 2,5/>4Kg	+	?	1
VE. Forc. Symphys.	+	+	1
C/Section	+	++	2
APH - PPH	?	+	1
Labour too Long/Short	?	+	1
HPT, PET	+	+	1
Heart-Murmur	?	++	3
Renal Protein	+	++	2
STD	+	?	1
Diabetes	++	++	1/3
Anaemia	?	+	1
Tb & other Med.	?	+	1/3
Birth Interv. Long	+	+	1
Late Booker	++	++	2
Bad Social	+	+	1
Bad Habits - Tob/Alc	++	+	1
Primigr.< 16/>30yrs	+	+	1/2
Over 35yrs	+	+	1
Height below 150cm	+	+	1
CPD	+	+	2
Parity 0 or 5 or more	+	+	1

This Pregnancy	Baby	Mother	Canadian
PreTerm	++	-	1
IUGR	++	-	3
Post Mature	+	-	1
APH	++	-	1
HPT, PET	++	+	2
Anaemia < 10gm	+	++	1
Mult. Pregn.	+	?	3
Few Fetal Moves	++	-	2
Wt < 45/>90Kg	+	?	1
Rupt. Membranes	++	?	2
Grand Multip	?	+	1
Breech 36wks+	+	-	3
Malpresent. 34wks+	+	+	3
Hydramnios	++	?	2

Risks during actual labour are not covered here but use of Philpott's Labour Graph will anticipate many of these and it should be used in every labour. Not to use it today amounts to negligence and is inexcusable.

Pelvic Examination - Vaginal Examination

Traditional teaching on this is no longer adequate in the light of new knowledge. C.K.Hudson says ("Practitioner", Sept 1981 p 1219) "Normally a VE should be done when the patient is FIRST seen and preferably at, or about, 8wks gestation. The size of the uterus can be fairly accurately defined at this stage and may provide valuable information if doubt subsequently arises about the duration of the pregnancy, poor fetal growth, twins, etc." The traditional VE at 36wks is far too late. M/Ws in Africa know that the baby's head can usually not be made to go into the pelvis and may not engage till late in labour so the 36wk rule has no meaning. A small pelvis is always small whether there is a baby in the uterus or not, and the labour graph soon reveals cephalo-pelvic disproportion in good time for action to be taken.

Reasons for Doing VE at First Visit

1. To calculate duration of pregnancy (the earlier the better) - Book Early.
2. To detect early dilatation and prevent preterm labour.
3. Pelvic assessment, if considered necessary, because of unreliable patients who may not return till they are in labour!
4. To detect pelvic pathology and do PAP smear if indicated and get result early.

VE's at Other Times

If preterm labour threatens, to check Cx score (see below)

Use of the Composite Fetal Growth Graph

Rules for Measuring

1. The bladder must be empty. This can be a problem since patients have to wait so long to be seen that the bladder may fill up again before examination is done.
2. The patient must be relaxed and lying on a firm couch - a soft bed will not do.
3. Find the long axis of the uterus - it is often tilted. Measure in the long axis.
4. Lie the tape measure gently along the curve of the uterus. Do not stretch or pull the tape measure tight Do not press either the uterus or tape down. Make the gentlest indentation that will just tell you where the uterine fundus is. Some M/W's seem to pound and kneed the poor uterus before they know where it is! This is quite unnecessary and gives inaccurate recordings. Unfortunately, measurements in fat women are far from reliable. Ignore the umbilicus. It has no relation to the monitoring of pregnancy at any stage, despite what old textbooks say.

Estimation of Duration of Pregnancy

Drawings of the height of the fundus at different stages of pregnancy found in textbooks do not agree among themselves, even in the same textbook (Maggie Myles, 1981 pp 67 & 129). They are only meant as a guide and if fetal growth is abnormal, will always be wrong. Only regular graphic recordings can show this up. Surprisingly, the height of the fundus in centimetres is sufficiently reliable to be used as a starting point between 20 and 34 weeks of pregnancy (see Correction Factor).

When patients book early, 1. They are more likely to remember their dates, and 2. You are more likely to be able to guess the stage of pregnancy. If a patient is found "by accident" to be pregnant while attending the hospital or clinic for any reason, e.g. bringing a child to the Under 5's Clinic, or attending outpatients with some non-obstetric complaint, never send her away without giving her an Antenatal Card and booking her. This may be the best chance you have to get all the base-line recordings which may be of crucial value at a later stage. After the second missed period, all women must be regarded as antenatal patients until proved otherwise. Few will not be pregnant.

This message must be taught to all staff and patients at every opportunity. To those who complain it means more work the answer is that it saves work because by detecting complications at an early stage, you have the situation under control from the start. (Compare the use of the labour graph - no long labours tying up staff for days when it is possible to get women delivered in 24hrs).

Combined Evaluation of Duration of Pregnancy (Gestation)

1. LMP - carefully checked.
2. VE done as early as possible.
3. Noting date of first fetal movements. Very few people seem to bother to ask about these but they can be helpful. Enter tick in fetal movement box.
4. Height of fundus in cms corrected for week of pregnancy using Correction Factor on card, between 20 and 34 weeks. (Week of Preg.=S-F in cms + 2).
5. Progress of growth curve in relation to week of pregnancy corrected for time by calendar week-numbers.
6. Assessment of size of fetus. This requires long experience and needs to take into consideration the size of the head, its relation to the size of the body, and the amount of liquor. These must all be related to the dates and growth curves so it should be done as a practice exercise but should not be relied on alone. If the findings don't fit, the patient should be checked weekly till a clearer picture of growth becomes evident or obvious. Don't just ask "How far is she pregnant?", always ask "Is the fetus growing normally?"

Fetal Growth Watching

Growth retarded and small for dates babies occur more commonly among women in developing countries and poor nutrition appears to be an important factor. But placental insufficiency can produce a "growth retarded" baby of apparently normal weight which would have weighed even more if it had grown normally. Some

small for dates babies appear to be small but are perfectly normal in all other respects. These two groups of babies make up the false positive and false negative graphs. We can miss some babies that need care and care for some babies that don't need any care. This is inevitable but the beauty of the growth graph is that it will alert us to most of those we do need to worry about. Some SBs die very suddenly in utero but the majority give us warning if we only pay attention. Growth curves may show poor growth even before reduced fetal movement tells the mother something is wrong.

These growth retarded babies tend to be stressed already so may do better after delivery if they are delivered early. But the great danger period is during delivery when the stress of anoxia may kill them. These can usually be detected in time if the labour graph is used for monitoring. Before labour, suspected babies must be checked with a "Kick Count" (see below). Sometimes a growth curve may run below the guideline but parallel with it. These babies may be small but should be growing satisfactorily.

Fetal Movements

It is strange that we have paid no attention to fetal movements before but they can tell us a lot about the wellbeing of the baby. A decrease of 50% in the amount of movement normally felt is a danger sign. Part of health education is to teach mothers to note how active their babies are, and to report at once if movements seem sluggish.

Fetal Kick Count Counting from Sunrise

This is the simplest way of checking the baby's movements and can easily be done by the mother after a little instruction. Watches are not necessary. The day is divided into three parts - sunrise to noon, noon to sunset, and after dark to bed-time. Ten kicks are counted in succession and a note made when the tenth kick is reached, e.g. "before noon", "after dark". As long as the ten kicks are counted before noon, all is well.

Kick counts falling between noon and sunset need checking. Those only completing ten kicks after dark are in danger and the mothers must be admitted.

Kick Count Chart

Enter tick in box for day of week and the time period in which 10 kicks were counted.

Week No.

Day	S	M	T	W	T	F	S
Before noon							
After noon							
After dark							

The Non-Stress Test

This is done when the fetal movements are proved to be reduced and gives some idea of the baby's response to the risk of being allowed to continue in the uterus.

Procedure - The mother lies completely relaxed on the couch or bed in semi-Fowler position. The M/Wife stands or sits where she can clearly and comfortably (if possible) hear the fetal heart. The base-line fetal pulse is recorded. As soon as any fetal movement is felt or heard with the stethoscope, the fetal pulse is counted again, until it is back to base-line rate. If a contraction is felt this can be of even more value and the pulse must be counted during and after the contraction. If there are no movements after 10 or 15 minutes, try to stimulate the baby by tapping or palpating. No response is a bad sign. Babies do sleep too but should wake easily!

Interpretation of Results - Response of Fetal Pulse

1. Acceleration after movement - Healthy Baby.
2. No change in pulse after movement - Suspicious - Repeat the test in 24 hours.
3. Slowing of pulse after movement and specially after a contraction - keep in hospital and check daily. Even if fetal movements stop altogether, prompt referral and C/Section may save a baby as long as the pulse can still be heard, but this needs to be done within 24hrs so it is a real emergency. Make sure every patient knows this. A lazy baby may be a dying baby!

This seems to be a very time-consuming test and M/Ws may be reluctant to sit at a bedside maybe for half an hour doing the test. We have to ask ourselves, what are we here for? A half-hour spent like this is really using your time properly. In fact the test may be over in 5 mins if the baby is healthy.

ONCE A MOTHER HAS REACHED HOSPITAL, A FETUS AT RISK SHOULD NEVER DIE IN THE UTERUS, EITHER BEFORE OR DURING DELIVERY. It is possible to monitor the fetal pulse accurately enough to get warning in enough time to take action to save the baby. Learn to allocate priority to those mothers and babies at greatest risk.

Management

The management of mothers with growth retarded fetuses is difficult but the first thing is to get them to rest in bed. This simple act alone may improve placental blood flow and improve the baby's chances. From there on it becomes the doctor's responsibility to decide what treatment to give or whether to induce labour or not.

PreTerm Labour (Premature)

Babies born too late (Stillbirths - SB) dealt with above, and babies born too soon (PreTerm - Premature), remain the most serious problems affecting babies in pregnancy. Unless perinatal care is exceptional, the longer a baby can be kept in the uterus the better, unless it shows signs of poor growth when the reverse may be true. How do we stop or prevent preterm labour?

Symptoms

Apart from women with obviously bad obstetric histories, many other women will go into labour prematurely without any reason being obvious. Since all our patients complain of backache an abdominal pain at some time we often pay little or no attention. Primigravidae specially, may not have any idea of what a labour pain is and by the time it is realised they are in labour, nothing can be done. It can be a disaster to send such a patient home when she has come to us for help. All patients must be made aware of the dangers of preterm labour and that something <u>can</u> be done if <u>early</u> enough. The most important thing is to get the patient to go to bed immediately she thinks she is having contractions. Do not take chances. A few days in bed does no one any harm.

Cervix Score

If you think preterm labour is beginning or is threatened, do a VE to check on the state of the cervix to see if it is more "ripe" than it should be for the stage of pregnancy.

1. Dilatation - Once the cervix dilates to 3cm or more labour is inevitable.
2. Thickness - Taking up of the cervix (Thinning) is a bad sign.
3. Feel (Consistency) - The soft cervix becomes even softer.
4. Axis (Position) - Every midwife knows how difficult it is to rupture membranes when the cervix is high and posterior. It rotates forward with approaching labour.
5. Level (Height) - Sometimes the head may remain high yet the cervix may descend. When the cervix or the head reaches below the level of the ischial spines, labour becomes inevitable.

The normal cervix score varies from 1 to 10 according to the stage of pregnancy and this is given along the top of the graph. Patients with scores higher than normal for that gestation should be put to bed and be referred.

Keeping Notes

Botswana is most fortunate in having the patient-kept outpatient card system. This gives us an unequalled opportunity to get important information from the patient's pink OP card. We have even found the LMP there from when the patient first came for find out if she was pregnant. Long after, when she came to book (too late), she had long since forgotten the date. We usually make double entries of all important things that happen during AN care. That is, we write both on the AN card <u>and</u> on the OP card. It takes a bit longer but pays off in keeping records up to date for future use. Any "overflow" from the AN card (which <u>is</u> cramped), can go on the OP card if properly dated and marked. Hospital staff (it is the doctor's duty) <u>must</u> see that clinic staff get the information they need to follow up the patient. Beautifully written notes are no use locked up in hospital records offices! Remember you are not the only person who will look after this patient. Your colleagues deserve the courtesy of decently written notes.

Teamwork

"NEVER DO A JOB SOMEONE LESS WELL TRAINED CAN DO JUST AS WELL!" This is a very important rule in overcrowded and understaffed clinics. It does not mean the doctor sits with his feet on the desk while the nurses do all the work, but it does mean that everybody, even cleaners and drivers, can do something useful to keep things moving. Some senior staff get very nervous about this and feel somehow threatened, but it is only common sense and if done in the right way can only do good. It certainly makes for a happy team where people appreciate their responsibilities and are too busy getting on with the job to be worried about status and "job reservation". What is more, everybody can go home at the same time because the work gets done efficiently. Some of the history taking, weights, BPs, and tape measurements can all be done by junior staff if properly taught and supervised. Each M/W should know what her staff are competent to do and provided she checks them from time to time she should use them to the full. They will respond to the extra confidence put in them. In this way the most experienced person then has more time for dealing with the really difficult problems which is her proper job.

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Appreciation

The staff of Ramotswa wish to express their sincere thanks to all midwives, doctors and other people who have contributed in any way to the development or production of this antenatal card. This represents a sharing of ideas and experience by many workers over many years and no single person could have arrived at so comprehensive an antenatal "package". It is quite impossible to list all those who made contributions. If it serves the purpose for which it was designed it will be thanks enough.

THE LABOUR GRAPH

NOTES FOR MIDWIVES

Read notes with graph in front of you.

The Labour Graph is now used by hospitals in all parts of the world. It is one of the oustanding advances in obstetrics in recent years. Try to convince your doctors that they should use it on all patients.

It is easy and simple to use and saves a lot of writing. You will then have more time to spend with the patient.

The graph immediately tells you whether labour is going well or not.

1. It warns of fetal distress at a stage when the baby can still be saved.

2. It detects maternal distress, disproportion and uterine inertia before the mother is too exhausted.

Simple observations to be made:

1. Fetal pulse before, during and after contractions.

2. Dilatation of the cervix.

3. Descent of the fetal head into the pelvis.

4. Duration and number of contractions.

5. Draining of liquor, meconium staining.

6. Moulding of the fetal head.

1. FETAL PULSE

Listen before, during and after contraction. (Fig. 1).

GRADE I

The pulse may slow during a contraction but recover quickly.

GRADE II

(Fetal distress serious).

The pulse only recovers slowly after slowing during a contraction. If the pulse remains above 160 or below 120 this also is a bad sign.

STAGES OF FETAL DISTRESS

a) Normal rate between 120 & 160 with no change during contraction.

b) Rapid (over 160) or slow (under 120) with no change during contraction.

c) Slowing during contractions but with quick recovery (Grade I).

1. With basic rate 120 to 160. 2. With basic rate above 160, or 100 to 120

d) Slow recovery after contractions (GRADE II).

1. With basic rate normal. 2. With basic rate above 160 or under 120

e) Rate always below 100 - near death - deliver at once:

HOW TO RECORD (Fig. 2)

Make a dot on the chart for the starting rate. If it slows, enter the slow rate directly underneath on the same time line and mark if GRADE I or GRADE II. Once fetal distress is found the baby must be delivered as soon as possible. While you are waiting for the doctor or the theatre, do the following:

a) Turn the patient on her side.

b) Give oxygen

c) Put up 5% dextrose at 60 drops a minute and give 20% or 50% dextrose into the drip.

d) Give pain relief if necessary.

2. DILATATION OF THE CERVIX (Fig. 4)

This is measured in cms. Full dilatation is 10 cms.

A. Latent Phase of Labour (Up to 3 cms dilatation)

The latent phase lasts 8 hours and little or no dilatation occurs. If good contractions and dilatation do not occur after 8 hours the doctor is called. It can be serious if:

a) the membranes have ruptured, or

b) there is fetal growth retardation (falling Growth Score or low S-F measurement).

B) Active Phase (More than 3 cms dilated)

From now on only liquids are given. If operation is decided on put up a dextrose drip and give nothing by mouth. Cervical dilatation now takes 9 hours or less to full dilatation, so all women should deliver in under 24 hours.

VAGINAL EXAMINATION

The first P.V. must be as complete as you can make it. Later P.V.s only check progress.

a) What is the presenting part, where are the sutures and fontanelles? Is there caput or moulding?

b) Are the membranes intact, is there meconium?

c) What is the dilation of the cervic in cms?

d) What is the application of the presenting part to the cervix and is the cervic being taken up? Wait for a contraction to feel this.

e) Is the pelvis adequate?

Plot the dilatation on the graph with an X.

P.V.s are now repeated 4 hourly using one finger to feel for cervical dilatation, membranes, sutures, fontanelles, moulding, application of the cervix and descent of the presenting part with contractions.

This sounds an awful lot to do but it doesn't take long and if not done means that the whole purpose of using the graph is wasted. Practice makes perfect. The Doctor should not have to repeat the nurse's P.V. because he will not find anything you have not already found. Mark the time for the next P.V. with an arrow on the graph. If you run off the end of the graph, fix another to the old one and continue but by now the doctor should be in direct control of delivering the patient.

3. DESCENT OF THE HEAD

If we divide the baby's head into 5ths (Fig. 5) we can estimate how much of the head has already gone into the pelvis and how much is still outside and write down how many 5ths are still above the brim. The head must be at least 3/5ths into the pelvis before the woman can be delivered vaginally, by vacuum, forceps or spontaneously. Plot the descent on the graph with an O, on the same vertical line as the cervix, from 5 down to O. (Fig. 6).

The level of the head can also be related to the degree of moulding and it gives us a better idea of the amount of disproportion.

4. CONTRACTIONS

We can easily be mislead by what we think are strong contractions but which are in fact, weak, painful contractions. By timing and counting them we can be quite sure exactly how strong the contractions are. However, it does mean standing at the patient's bed with your hand at the uterus for at least 10 minutes. There is no short cut. We have to know what the contractions are like before we can decide whether labour is progressing or slowing down due to inertia or disproportion.

a) Time each contraction with the second hand of your watch and shade in the contraction square on the graph like this: (Fig. 7).

   1. Less than 20 seconds draw dots.
   2. 20 - 40 seconds draw lines across the square.
   3. Over 40 seconds - black out square completely.

b) Now count how many contractions occur in 10 minutes. Fill in one square for each contraction. (Fig. 8).

Contractions should progress steadily from weak to strong, and continue strong till delivery. If they start to weaken, something is wrong and the doctor must be called. Meanwhile, put up some glucose to feed the muscle. Checking contractions is absolutely essential when the patient is on oxytocin.

4. LIQUOR (Fig. 9)

If membranes are still intact, write "I" in the space.
If liquor is draining and is clear, write "C".
If you see MECONIUM, write "M".

6. MOULDING

If no moulding, write "--"
If bones touching, write "+"
If bones overlapping but separable with your finger, write "++"
If bones overlap and cannot be separated, write "+++"
Moulding is a sign of disproportion and may be the only sign of distress. Delay, increasing moulding and/or meconium usually means vaginal delivery cannot occur.

PROGRESS OF LABOUR

This assessed by noting:

a) Cervical dilatation
b) Descent of the head
c) Increasing strength of contractions

Every 4 hours a decision must be made, asking the following questions:
What is ?

1. The baby's condition?
2. The mother's condition?
3. The progress of labour?
4. The further management?

ACTIVE TRIAL OF LABOUR

Every labour is a trial of labour.

If there is doubt about the presence of disproportion, a trial of labour is justified since the graph will give clear warning when to stop the trial.

ALERT AND ACTION LINES

The alert line marks the dividing line between normal and delayed labour. If at any time the dilatation of the cervix falls to the right of the alert line, the doctor is informed and has to supervise labour from this point. Clinic nurses must refer patients to hospital at this point, in good time to get the patient safely delivered. (Fig. 4 shows two possibilities (dotted lines)).

a) No delay - to the left of the alert line - rapid dilatation and delivery before crossing the line.

b) Delay - plot passes to the right of the line - the nurse need have no hesitation in calling the doctor at this point.

From now on P.V.s need to be done every 2 hours. This is particularly important if the cervix is 7 cms or more dilated or there is fetal or maternal distress or a multigravida crosses the alert line.

If the cervix is 4 cms or more dilated, on admission, put your X straight on the alert line. If a patient in the latent stage dilates to 4 cms or more, tranfer the X to the alert line, and remember to transfer the time also.

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OXYTOCIN

If contactions in primigravidae are unsatisfactory and there is no obvious disproportion, the doctor may decide to stimulate contractions with oxytocin. This can be recorded on the graph by writing in the number of drops in the space provided. It is usual to start with 2½ units in 1 000 ml 5% dextrose at 5 drops/min and double the rate every ½ hour till there are 4-5 contractions of more than 40 seconds in 10 minutes.

RUPTURE OF THE UTERUS

This is an ever present danger when oxytocin is being used, so the midwife must monitor the contractions very carefully. However, in primigravidae, oxytocin properly used, will save many a ceasarean section.

MATERNAL CONDITION

Fever, pulse over 110, a rising B.P. and restlessness, mean maternal distress and will need treatment.

URINE

Acetone in the urine can be just as important as protein and is a sign of maternal distress. If you are in any doubt, put up a dextrose drip. If acetone persists it may be necessary to give 50% dextrose into the drip. In a well-managed labour acetone should not occur.

Urine volume must always be measured and can be very important if large doses of oxytocin are used.

PROBLEM PATIENTS

a) Prolonged latent phase - more than 8 hours.

If there is no contra-indication, membranes are ruptured and an oxytocin drip started.

b) Crosses alert line. If no contra-indication, doctor orders oxytocin.

c) Crosses action line. Ceasarean section if,

1. Dilatation less than 1 cm/hr and no descent of head.
2. Increasing moulding with no descent.
3. Fetal distress.
4. Maternal distress with no prospect of early delivery.
5. Fully dilated multip. with no descent of head. These are the most likely to rupture.

MANAGEMENT OF THE SECOND STAGE

Patients must not be allowed to push too long if there is no advance of the head. Access progress every 10 minutes.

Assist delivery if:

A primigravida shows no advance after pushing for 30 - 40 minutes.

A multip 20 - 30 minutes.

DANGERS OF LONG LABOUR

a) Infection of mother and baby

b) Fetal asphyxia and stillbirth

c) Anaesthetic and surgical dangers of late operations on sick mother and baby

d) Breakdown of morale of mother and midwife

Priorities and selection of patients to monitor on graph:

In a well-run unit ALL patients will be on a graph.

Priority I - Must be on graph

a) Meconium stained liquor

b) C.P.D. suspected

c) Abnormal Fetal Pulse

d) Unbooked

e) Two or more of above

Priority II - SHOULD be on graph

a) Growth retarded

b) Poor obstetric history

c) Previous C/S

d) Medical complication e.g. P.E.T.

e) Prolonged rupture of membranes

f) Elderly Prim. or long time between babies.

Priority III - ADVISE graph be used

a) Post-mature

b) H.P.T.

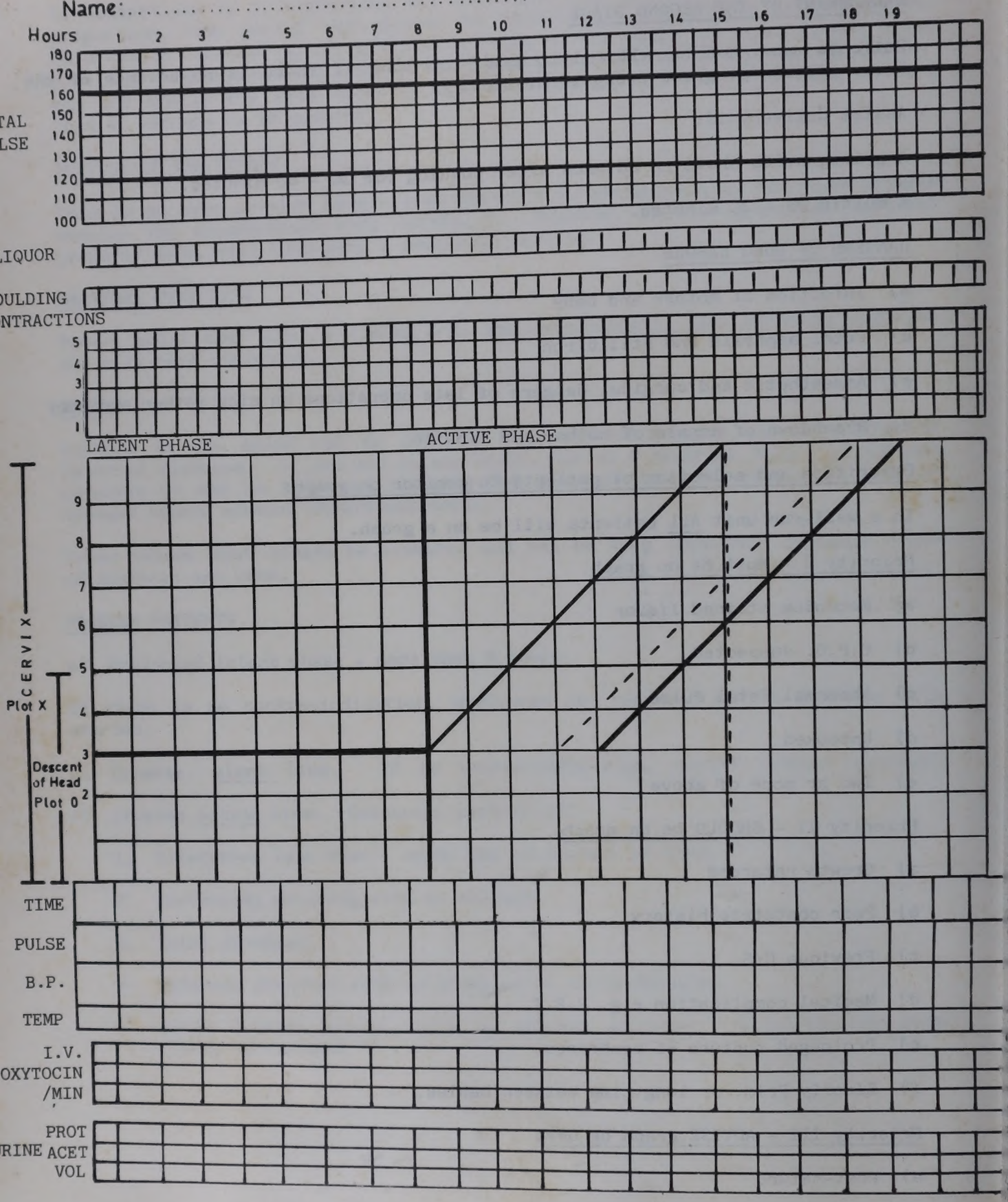
c) A.P.H.

LABOUR GRAPH

Date:.....

No:

Name:.....



LABOUR GRAPH

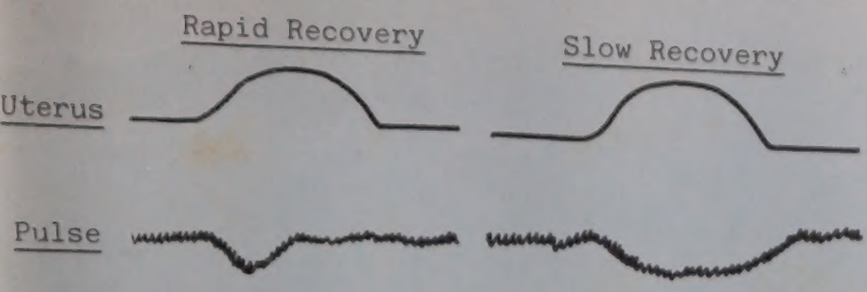


Fig. 1

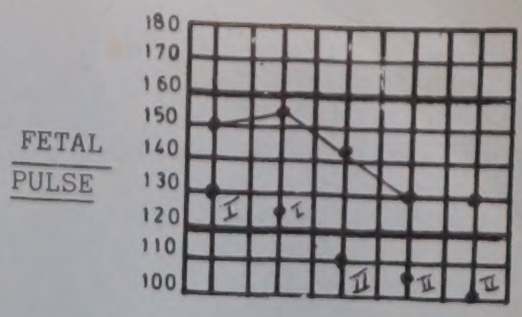


Fig. 2

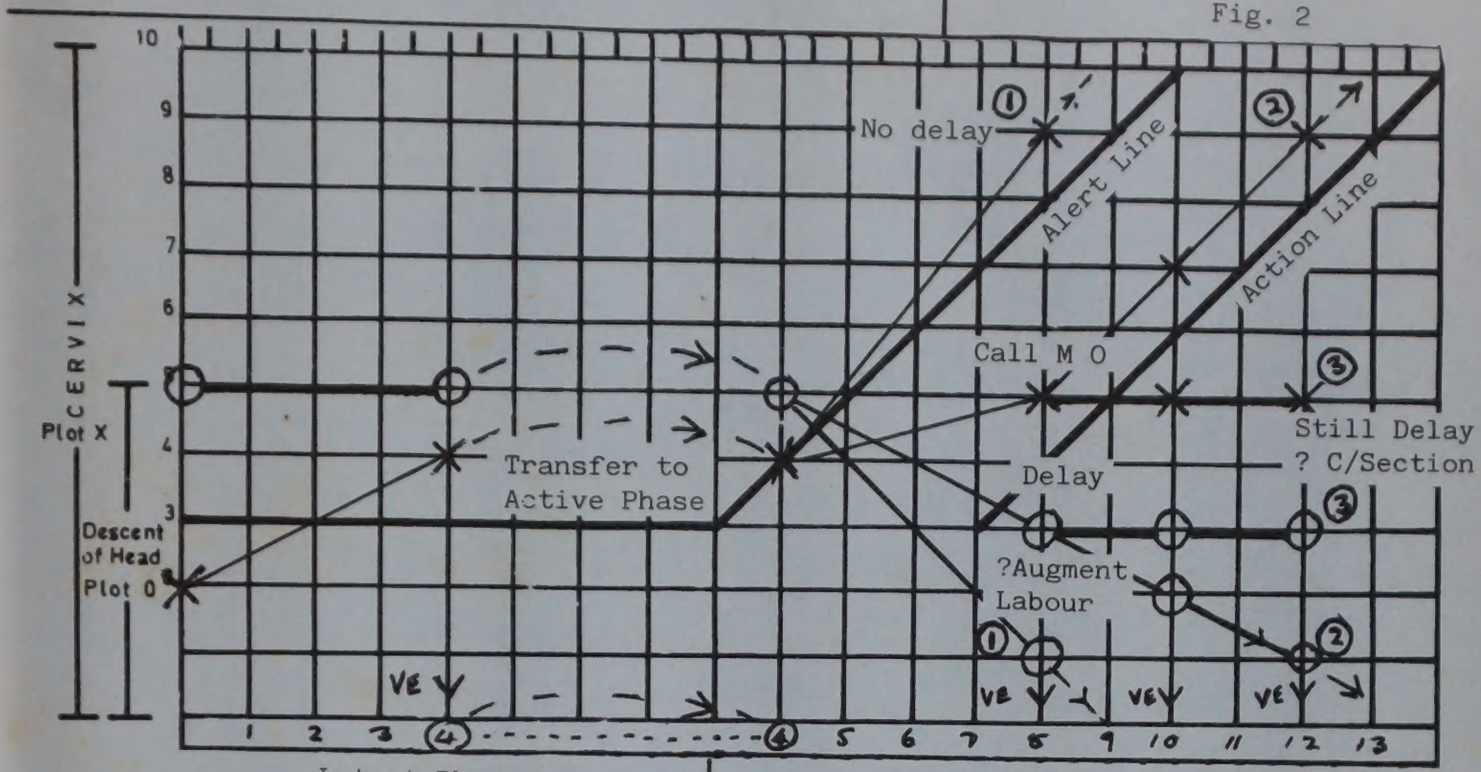


Fig. 3

Outcome of Labour - 3 Possibilities:

1. Steady progression - No delay - Normal Labour and delivery.
2. Delay noted after crossing Alert Line - Progresses without further delay, usually after augmentation of contractions with Syntocinon.
3. Delay in spite of adequate contractions - unlikely to deliver without C/Section.

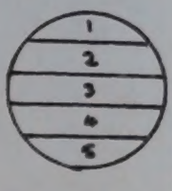


Fig. 4

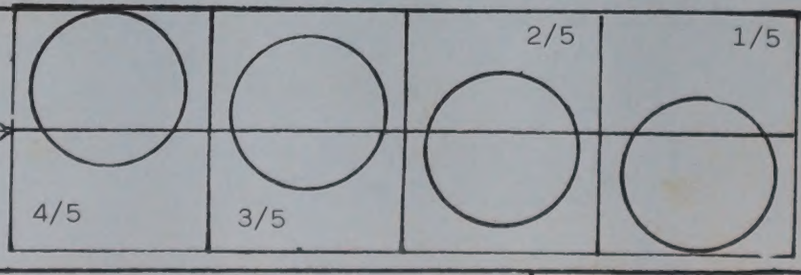
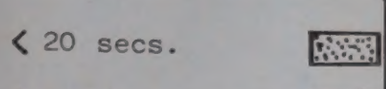


Fig. 5



Length of Contractions

Fig. 6

2 contractions 20 secs.

3 contractions 20 - 40 secs.

4 contractions 40 secs.

How to Plot Contractions

Fig. 7

I C M

I = Membranes Intact
C = Clear Liquor
M = Meconium Stainir

Liquor

Fig. 8